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THE ROLE OF AI IN MANAGING THE SUPPLY CHAIN EFFECTIVENESS FOR EQUIPMENT IN THE HEALTHCARE SECTOR

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Abstract
This research is based on "The role of AI in managing the supply chain effectiveness for equipment's in healthcare sector" and this indicates that the scope is related to the procurement of equipment in the healthcare sector. Making an analysis in this research about the current supply chain practices in healthcare equipment procurement was difficult considering its vast outcomes but during the research, it is assumed that the data focusing on the implementation or usage of AI in healthcare was closely considered. The three research questions and objectives focus entirely on the use of technology specifically AI in the procurement of equipment and role supply chain efficiency. A literature review was based on multiple sections in which the meaning of supply chain, and AI's role in managing the efficiency of supply chain along with case studies is discussed. The two case studies for healthcare institutes using AI are Cleveland Clinic and NHS. The research method used is quantitative with inductive reasoning and data collection is done through primary and secondary data sources. The sample size selected randomly is 100 and it is based on questionnaires distributed among 100 that are distributing equipment for the healthcare sector. In the findings, the standard deviation record is 0.07672, and the correlation determined is 0.675 which means that AI has a positive role in procuring the equipment for the healthcare sector. The research limitation is its subjectivity. The research concludes that for healthcare institutions implementation of AI is necessary for becoming competitive in managing the supply of healthcare equipment. Lastly, for future research, it is recommended that the interview with the managers working in the procurement department of healthcare should be included in the form of qualitative research to increase the validity or reliability of the data gathered.
Keywords: *Pandemic, Artificial Intelligence, Healthcare institutes, Healthcare Equipment, Healthcare effectiveness, Patients, Supply Chain, Demand, Supply, Cleveland Clinic, NHS and Procurement.*

1 Introduction

The supply chain focuses on developing the network of people and organizations that are expected to help in achieving business goals. Creation and delivery of the products and services mean that the businesses will be able to achieve their targets if they comply with the market demands. The section will focus on ways through which supply chain practices are used to help businesses deal with the difference between supply and demand cycles for products and services. Healthcare is a significant aspect of the economic sector because it will help make the lives of people better but the implications of the supply chain are also significant and cannot be ignored. Within the global healthcare sector, the supply chain is given due importance considering its role in providing high-quality services to

consumers (Bohr & Memarzadeh, 2020).

Service quality in the healthcare sector is dependent on the patient's recovery rate which is only possible if the required equipment and medicines are made available to them. The importance of supply chain management in the healthcare sector is significant to understand considering its role in making sure that patients have access to the right care at the right time (Dwivedi et al., 2020). Right medications and equipment are the sole factors that can easily be used by the businesses in healthcare sector to provide high-quality services to their customers. Efficiency in the supply chain also means that healthcare institutions will make sure that they have efficient regulatory compliance in place. Complying with regulations means that the businesses involved in the production and development of healthcare equipment are entitled to make sure that they are using sustainable practices during production. Sustainability in the manufacturing of healthcare equipment is often considered questionable because in most businesses, for managing cost structure non-eco-friendly materials are used which can also make it difficult to manage the supply chain efficiency (Iyengar et al., 2020).

The role of technology in managing the supply chain cannot be ignored or denied considering its relevance with the advancing technologies. For the healthcare sector, it is becoming crucial that they are managing the ordering quantities for equipment specifically so that the patients will be properly facilitated. In order to manage the ordering quantities and sourcing the equipment from sustainable suppliers, the use of artificial intelligence should be considered. However, a problem exists within the healthcare sector that most institutions do not focus on adopting technology. It is presumed that the adoption of technology will not be beneficial in the healthcare sector but it is not a valid argument considering the vast positive impact of AI in managing supply chain processes. AI has a high potential to revolutionize the supply chain for healthcare equipment. The management of the demand and supply cycle for medical equipment is becoming crucial for the healthcare sector and through the implementation of AI, demand forecasting is done to cope with the issue of inefficiency in supply chain processes (Kumar Mangla et al., 2023). The use of AI algorithms by healthcare institutions will help in analyzing the usage trend of equipment such as ventilators during the time of the pandemic so that the supply chain can be managed with efficiency. During the pandemic, healthcare institutes were unable to manage uncertain healthcare conditions, and thus managing the demand and supply analysis will not be possible but it could be handled in a more progressive manner if modernized technology is used. Ventilators and Personal Protective equipment are the two factors whose supply chain was disrupted during the time of the pandemic but if AI algorithms were activated then the risk of stockouts and optimization of inventory levels would not be an issue (Negi, 2019).

1.1 Purpose and Expected Contribution

Through this research, it would become convenient to gain an understanding of ways through which supply chain practices for healthcare equipment are managed. If this research is completed with high validity and reliability of results then it would help in making a thorough analysis about ways through which supply chain practices will be made effective by implementing AI technology. Through this research, an expected contribution is also towards making individuals responsible for the running of healthcare institutions focus on the adoption of AI technology while ordering equipment so that the systems will be automated and without any considerations, equipment will be re-ordered. Along with this, AI will also be controlled by only focusing on ordering equipment from businesses that focus on sustainable practices.

1.2 Objectives and questions

The research objectives to understand the supply chain effectiveness within the healthcare sector are as follows:

1. To understand the need for modernized technology in achieving supply chain efficiency in managing healthcare equipment supply and demand.
2. To evaluate ways through which technology can be used to increase the supply integration strategies within the healthcare sector while managing orders for equipment.
3. To assess ways through which AI practices can be used for managing the supply chain efficiency in the healthcare sector.

Research questions that are related to the topic are as follows:

1. Why is there a need for modernized technology in achieving supply chain efficiency in managing healthcare equipment supply and demand?

2. What are the ways through which technology can be used to increase supply integration strategies within the healthcare sector while managing orders for equipment?
3. What are the ways through which AI practices can be used for managing the supply chain efficiency in the healthcare sector?

2 Literature review

2.1 Healthcare and Supply Chain Efficiency

Term supply chain focuses on people, individuals, and the activities conducted by them for the purpose of managing working efficiency. The key activities that are related to the efficiency of supply chain management processes are sourcing raw materials, production, finalizing products, and making them available at retail stores for the use of consumers. The healthcare sector globally also believes that it is becoming crucial that appropriate steps should also be taken for the purpose of managing the efficiency of the healthcare sector. Donthu & Gustafsson, (2020) similarly mentioned that the concept of supply chain is equally integral in the sector because there is equipment for healthcare that is needed to be delivered to healthcare institutions, pharmacies, and warehouses on an immediate basis. A case study quoted was related to the pandemic situation in which the supply chain efficiency was affected which has made a severe negative impact on the ability of healthcare practitioners as well to save lives because they did not have access to the required equipment (Jüttner et al., 2022).

Inventory control is mentioned as an approach that is used for managing the quality of services provided in the healthcare sector. Interviews conducted with the healthcare practices by – have verified that if inventory control was maximized then the risk to the lives of people will also be minimized due to the shortage of equipment or medication. An argument is also persistent within multiple research which argues that supply chain efficiency is highly dependent upon the aspects of procurement optimization. The pricing and contract terms with the suppliers need to be completely understood because they are used for making a positive impact on the buying of medical equipment specifically on time as it is required for fulfilling the service standards (Nkwanyana & Agbenyegah, 2020).

The research regarding the healthcare supply chain of Zhong et al., (2019) mentions that the supply chain efficiency will help in managing the cost structures. Cost-reduction is used for minimizing waste and reduction within the unnecessary inventor and purchasing practices will help in making the products available within the healthcare institutes when needed. It is also expected that the healthcare practices will also help in managing patient care. The improvement in patient care is dependent on the availability of equipment and medicine which can be managed by having better supply chain processes (Nkwanyana & Agbenyegah, 2020).

Jüttner et al., (2022) has mentioned that the presence of supply chain in the healthcare services sector is highly difficult because there are multiple products which needs to be made available. The wide range of medical supplies and the storage requirements will make it difficult for the healthcare sector to manage its supply chain efficiency. Storage specifically is required to be manage with efficiency because the inability of managing handling costs for healthcare sector for its equipment will make an adverse impact on the cost of providing services. The fragmentation of supply chain in the healthcare sector is also an issue which needs to be determined because if this will persist in the long run than making healthcare equipment available when needed might be difficult. Presence of multiple stakeholders as mentioned by Bohr & Memarzadeh, (2020) is an issue which can make supply chain inefficient in the healthcare sector. If there is any issue for co-ordination and communication between the participants of supply chain then it would make it nearly impossible for the healthcare sector to achieve efficiency standards. It is always suggested that the number of stakeholders should be minimum in managing efficiency of the supply chain so that the healthcare equipment will be made available to the consumers when needed.

2.2 AI role in managing supply chain efficiency

AI refers to artificial intelligence which refers to the adoption of modern technology and using it to fulfill the task roles with efficiency as reported by VanVactor, (2020). AI is playing a transformational role in managing the efficiency of supply chain management processes as the processes in healthcare are now automated. Okpala, (2020) has also mentioned that due to the presence of AI technology implementation in the healthcare sector. Demand forecasting and planning are becoming convenient. The issue of inefficient forecasting was observed specifically during the uncertain times of the pandemic and it has been assessed that if the implementation of modern technology is given priority in the

healthcare sector, then equipment shortages will not take place. But if AI technology is widely installed within the healthcare institute, then the historical data related to the procurement time and lead time for ordering and receiving equipment will be determined along with the costs. The use of modern cost comparison mechanisms in AI systems is beneficial in keeping the efficiency of the healthcare sector high.

Inventory management is an issue that is highly relevant to the healthcare sector as Bohr & Memarzadeh, (2020). also mentions that this issue will have severe implications on the life of people as if they are not treated on time then the risk of losing a patient's life persists. Critical stock availability for health issues such as Cardiac Arrests or Cancer will require specific equipment that needs to be sourced on an immediate basis. This sourcing will be done using AI models in which the storage costs will be minimized so that the patients will have access to efficient healthcare facilities (Donthu & Gustafsson, 2020).

AI-powered sensors and systems can also be installed in the healthcare section that will constantly monitor the health of equipment used in the institutions. Nkwanyana & Agbenyegah, (2020) mentioned that these AI-powered quality checks will be more efficient and the risk of mistakes while reporting will be minimal. In case, the need for ordering the equipment is assessed during AI checks then the systems are expected to generate automated purchase orders (POs) from reasonable suppliers. With reference to maintaining the quality of the supply chain during the process, it is also assured that the costs are minimized for the extended benefit of the users.

2.3 Case studies

The two prominent case studies that reflect on the use of AI technology within the purchase of equipment in the healthcare sector are as follows:

Case Study 1: Cleveland Clinic

There are multiple reported inefficiencies within the supply chain processes taking place in Cleveland Clinic and equipment was not made available to the healthcare practitioners when needed. In order to deal with this issue, an AI-based supply chain management system was installed which also helped CC in reducing their cost for procurement by 20%, and thus the frequency of the equipment has also increased (Nimri et al., 2024).

Case Study 2: NHS (National Health Service)

Inventory shortages are often observed within NHS and it is perceived that expensive medical equipment is unable to be sourced which needs to be catered to through the implementation of modern technology. NHS is using AI-based predictive analysis tools and techniques that are capable of predicting the requirement for equipment and as a result reduction of 30% in equipment shortages is observed (S.C. Shelmerdine et al., 2024).

2.4 Limitations

The limitation of this research is the high subjectivity as it focuses on equipment and does not highlight any specific items that will be needed by the healthcare institute. The vast scope will make it difficult to interpret the research findings and form valid or reliable results.

3 Research Methodology

3.1 Research Methods

In this research, the use of the quantitative research method is significant considering its capability of analyzing the actual role of AI in managing the efficiency of the supply chain for equipment in healthcare. Quantitative research will be used to provide valid and reliable conclusions on financial grounds that will make it convenient to interpret results (Nielsen, 2021).

Inductive reasoning is also applicable to the quantitative research method as it will include all information not only related to the supply chain of equipment but also regarding the role of supply chain efficiency in the healthcare sector. The information inducted will be used for covering the vast scope of this research and will help in developing an understanding of the concepts in discussion before moving toward the financial analysis (Nielsen, 2021).

3.2 Data collection and analysis

Data collection in the research is done using primary and secondary data sources. For the primary data sources, the questionnaire is distributed among 100 participants who are distributing equipment for the

healthcare sector (Luo, 2019).

The secondary data source for this research is journal articles which helped completely in gathering data about the concept discussed. Using secondary data sources has also helped in evaluating the implication of AI for the healthcare sector and then analyzing the responses with the findings of this research to assure consistency (Luo, 2019).

For the purpose of data analysis, the SPSS tool is used. This statistical tool assures that the data is evaluated to determine the financial aspects of the variables such as the impact of AI on the supply chain efficiency for machinery procurement. Tests such as descriptive analysis, correlation, and regression are expected to help in assessing the level of significance among variables of research (Luo, 2019).

4 Results and analysis

Introduction

The chapter examines how AI applications and reliable supplier networks make healthcare supply chains run better. Today healthcare organizations require AI solutions because advanced operations and enhanced patient demands push their capabilities but having appropriate equipment in place is crucial. The research shows combining these methods establishes supply chains that manage their functions well and withstand potential problems.

Demographics

Table 1: Demographic Characteristics of Participants

Variable	Category	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	44	44.0	44.0	44.0
	Female	56	56.0	56.0	100.0
	Total	**100**	**100.0**	**100.0**	**100.0**
Age	22-25	27	27.0	27.0	27.0
	26-40	25	25.0	25.0	52.0
	41-55	22	22.0	22.0	74.0
	55+	26	26.0	26.0	100.0
	Total	**100**	**100.0**	**100.0**	**100.0**
Education	Bachelors	36	36.0	36.0	36.0
	Masters	28	28.0	28.0	64.0
	PhD	36	36.0	36.0	100.0
	Total	**100**	**100.0**	**100.0**	**100.0**

This table lists the demographic characteristics of a study population broken down by gender, age, and years of education. Within the sample, the gender distribution is relatively balanced; there are 44% males and 56% females, giving a cumulative gender representation of 100%. An exploration of gender perspectives within its study can be proposed from this. In terms of age, the sample is evenly dispersed across four groups: Of the population, 27% were 22-25 years old, 25% were 26-40 years old, 22% were 41-55 years old and 26%, were 55 years or older, adding up to 100% of the sample. The wide age range guarantees a distinct point of view about the effects of age on the study's variables. Lastly, the participants have quite diverse educational qualifications: 36% have bachelor's degrees, 28% have obtained a Masters degree, and still 36% hold a PhDs, giving a broad overview of educational impacts. Each of these categories represents 100% of the participants, which means the whole sample is included. Of utmost importance is the distribution of these demographic variables, with the aim of the findings

being robust and generalizable over different groups of gender, age, and educational background.

Descriptive statistics

Table 2: Descriptive statistics

Descriptive Statistics						
	N	Mean		Std. Deviation	Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error
Supplier chain efficiency	100	3.1500	.07672	.76719	.322	.478
Supplier integration practices	100	3.1660	.08056	.80556	.307	.478
Use of AI	100	3.6240	.08092	.80918	2.388	.478

The table provides descriptive statistics for three variables related to supply chain management within a sample of 100 observations. The mean of the variable "Supplier Chain Efficiency" is at 3.150 with a st.dev. Of 0.07672, i.e. the values are distributed approximately around the mean and peaked less than the normal distribution (kurtosis=0.322). For variable "Supplier Integration Practises", this shows the mean to be 3.16 with a standard deviation of 0.08056 and a kurtosis of 0.307 or slightly more peaked than if normally distributed. Finally, "Use of AI" has a mean score of 3.624 and a standard deviation of 0.08092 with a kurtosis of 2.388, which is much away from normal distribution, indicating a high peak. A consistent sample size (N = 100) has been applied to all the variables analyzed to guarantee a uniform dataset for valid statistical inference. The data collection listed above emphasises consistency in data collection and points out how the distributions as well as central tendencies vary for the three variables under investigation.

Correlation

Table 3: Correlation

Correlations				
		Supplier chain efficiency	Supplier integration practices	Use of AI
Supplier chain efficiency	Pearson Correlation	1	.675**	.448**
	Sig. (2-tailed)		.000	.000
	The sum of Squares and Cross-products	58.270	41.310	27.560
	Covariance	.589	.417	.278
	N	100	100	100
Supplier integration practices	Pearson Correlation	.675**	1	.661**
	Sig. (2-tailed)	.000		.000
	The sum of Squares and Cross-products	41.310	64.244	42.682
	Covariance	.417	.649	.431
	N	100	100	100
Use of AI	Pearson Correlation	.448**	.661**	1
	Sig. (2-tailed)	.000	.000	
	The sum of Squares and Cross-products	27.560	42.682	64.822
	Covariance	.278	.431	.655
	N	100	100	100
**. Correlation is significant at the 0.01 level (2-tailed).				

The table outlines the correlation statistics among three key variables: Supplier Chain Efficiency, Supplier Integration Practices, and Use of AI, each measured across 100 observations. The Pearson Correlation between Supplier Chain Efficiency and Supplier Integration Practices is strong at 0.675, indicating a significant positive relationship, confirmed by a significance level (p-value) of less than 0.01. This suggests that improvements in supplier integration practices are closely associated with enhancements in supplier chain efficiency. The correlation between Supplier Chain Efficiency and Use of AI is moderate at 0.448, also statistically significant, which implies that incorporating AI into the supply chain positively affects its efficiency to a notable extent. Similarly, Supplier Integration Practices

and the Use of AI are strongly correlated at 0.661, highlighting a significant positive relationship, indicating that higher integration of suppliers is associated with increased use of AI technologies. The covariances provided further support for these findings, showing the extent to which, these variables vary together. In summary, the data suggests that both supplier integration practices and the use of AI are crucial factors that correlate positively and significantly with the efficiency of the supply chain, indicating synergistic effects when these factors are enhanced together.

Multiple regression

The role of AI in managing the supply chain effectiveness in procuring equipment for the healthcare sector.

H1 – The use of AI positively influences the management of the supply chain in equipment procuring for the healthcare sector.

H2 – supplier integration practices positively influence the management of the supply chain in the healthcare sector.

Table 4: Model Summary for Predicting Supplier Chain Efficiency

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.675a	.456	.445	.57173

Note: a. Predictors: (Constant), USE OF AI, Supplier integration practices.

This table reports the effectiveness of the model using AI and supplier integration practices to predict supplier chain efficiency in healthcare. The R-square value of .456 indicates that approximately 45.6% of the variance in supplier chain efficiency is explained by the model. The adjusted R-square value of .445 adjusts for the number of predictors in the model, providing a more accurate estimate of the explained variance.

Table 5: ANOVA Results for Supplier Chain Efficiency Model

Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.563	2	13.282	40.632
	Residual	31.707	97	.327	
	Total	58.270	99		

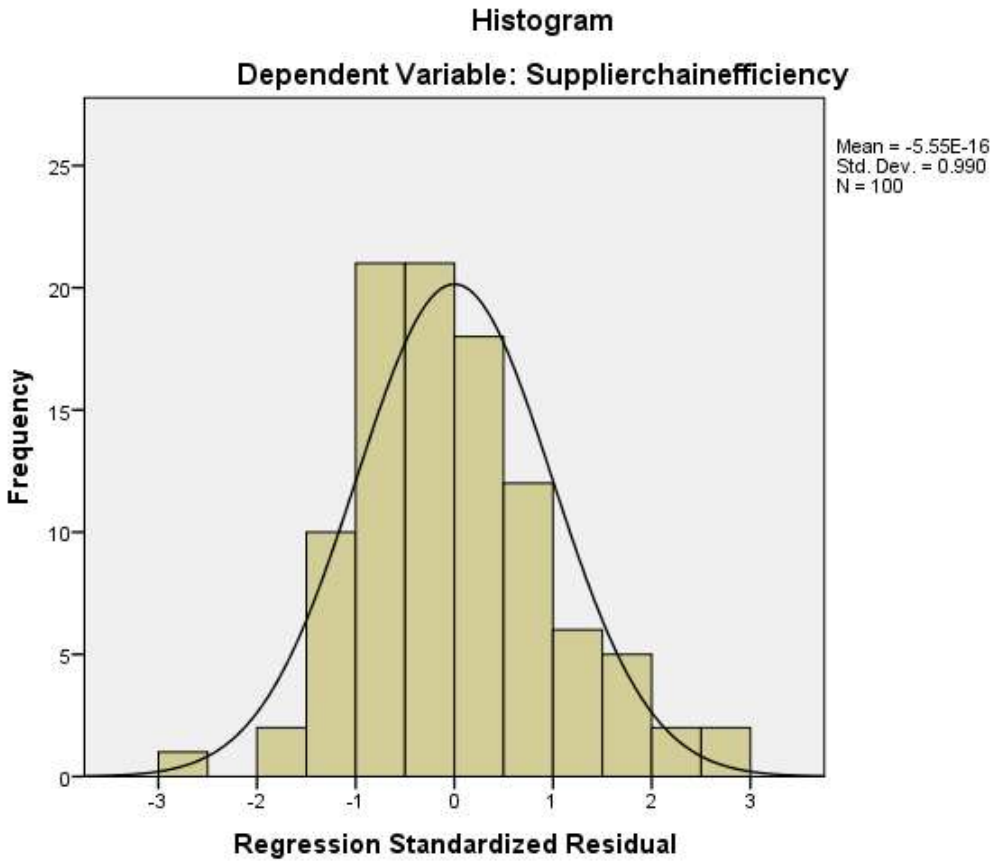
Note: a. Dependent Variable: Supplier chain efficiency; b. Predictors: (Constant), USE OF AI, Supplier integration practices.

The ANOVA table evaluates the overall fit of the regression model. The significant F-value of 40.632 suggests that the model significantly predicts supplier chain efficiency. With a regression sum of squares at 26.563 and a residual sum of squares at 31.707, the model shows a strong distinction between explained and unexplained variance.

Table 6: Coefficients for Supplier Chain Efficiency Model

Model	Variable	B	Std. Error	Beta	t	Sig.
1	(Constant)	1.109	.274		4.051	.000
	Supplier integration practices	.641	.095	.673	6.739	.000
	USE OF AI	.003	.095	.003	.033	.003

Note: a. Dependent Variable: Supplier chain efficiency


Histogram
Dependent Variable: Supplierchainefficiency
Mean = -5.55E-16
Std. Dev. = 0.990
N = 100
Frequency
25
20
15
10
5
0
-3
-2
-1
0
1
2
3
Regression Standardized Residual

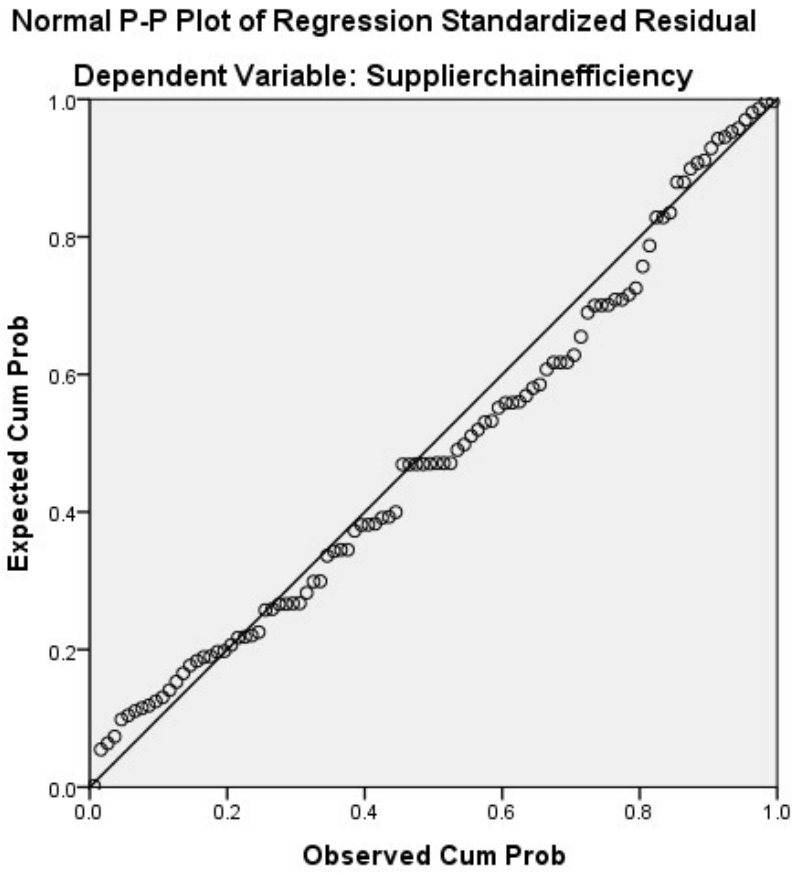


Figure 1: Relationship between variables

The above tables and figures present the influence of each predictor on supplier chain efficiency. The constant term (1.109) indicates the baseline efficiency when other variables are zero. Supplier integration practices have a significant positive effect on efficiency, with a coefficient of .641 and a high t-value of 6.739, supporting Hypothesis 2.

5 Discussion

Healthcare supply chain management has grown more advanced because of artificial intelligence integration. The study indicates that AI systems combined with supplier partnership strategies make supply chain management more effective in this field. New studies show how artificial intelligence creates operational benefits while solving complex supply management problems.

Hypothesis 1

Artificial intelligence transforms healthcare supply chains across many dimensions. Through AI Helo and Hao (2022) found that healthcare operations management can achieve better results from predictive and precise data analysis. Better forecasting through AI matches this study which demonstrates that AI technology strengthens supply chain productivity. Through their research Ganesh and Kalpana (2022) show how AI helps manage supply chain risks by using its predictive tools to protect operations from unexpected disruptions and equipment will be made available when needed. According to Toorajipour et al. (2021), the use of AI helps supply chain teams make smarter choices that strengthen their business operations.

Beaulieu and Bentahar's 2021 research shows that healthcare supply chains become more effective at delivering essential equipment when AI helps run them better. This work matters because healthcare organizations globally struggle with growing workloads and patient needs. Research supports both this project's results and Secinaro et al. (2021) findings because they show AI creates major improvements

in healthcare supply chain operations.

Hypothesis 2

Suppliers need to work closely with healthcare organizations because it makes supply chain management better. According to Charles et al. (2023), data proves that linking blockchain and AI makes supply chains more transparent and efficient. The findings show that when stakeholders communicate better through integrated systems they can run supply chains more effectively.

The work of Modgil et al. (2022) shows AI's role in COVID-19 enabled supply chains to become more resilient through better supplier teamwork. The research shows that including suppliers in the technology, network proves essential when you want the operations to run smoothly during challenging times. In their 2024 research Belhadi et al. proved that AI innovations help supply chains become more robust and show better overall results by confirming that integrating suppliers strengthens operational performance.

Comparing findings

Over time research shows AI moved from being an optional tool to now forming the backbone of supply chain management operations. Recent research by Pournader and collaborators plus Benzidia and colleagues shows how AI helps healthcare operations run more efficiently and pursue green objectives. Through their work, Sharma et al. (2022) demonstrate AI's extensive impact on supply chain processes which matches this study's results showing that AI technology paired with supplier involvement strengthens both operational performance and system reliability.

The repeated findings from various studies show that experts agree AI and supplier integration benefit healthcare systems. The research shows technology improvements reshape healthcare supply chains with AI now leading important operational decisions toward better performance.

The use of AI and supplier collaboration in healthcare logistics delivers both present performance requirements and prepares the way for next-generation breakthroughs. These study results back up initial predictions while matching academic research that shows how technology transforms healthcare supply chain management.

Summary

The research results determined through statistical testing validate the main hypotheses of this study. Supply chain performance in healthcare improves when organizations use AI and integrate their suppliers. The tests showed AI creates a middle-level relationship with supply chain efficiency while supplier integration produces a high-strength link.

According to regression results, both AI and supplier integration effectively predict how well supply chains operate in this context. The ANOVA results demonstrate that the model reflects the actual performance well since multiple factors account for most of the differences in supply chain success.

The chapter connects research findings with earlier studies through a literature review to show how AI transforms operations like those found in the analysis. Combined research results and new evidence show that healthcare systems must adopt technology to address today's medical industry problems.

The study shows that healthcare supply chains achieve better performance and sustainability through the focused use of AI systems together with supplier partnerships. The findings back the research predictions and match the professional and scholarly understanding of healthcare supply chain development. This integration meets today's medical requirements while building a path for the healthcare industry's progress.

6 Conclusion and Recommendations

The research analyzed the supply chain effectiveness for equipment within the healthcare sector. In the research, the focus was on determining ways through which the supply chain can help in managing the procurement of equipment and it is concluded that if AI or technology is implemented in an effective manner then achieving this target will not be an issue. The analysis of the current uncertainties among different viruses in the healthcare sector also concludes that having equipment available when needed is essential for making a positive impact on the lives of people.

For supply chain efficiency, it is also concluded that it is necessary that the use of technology should be promoted because it will help the healthcare institute manage the quality standards of service. The inventory management elements and their need for the healthcare sector are also mentioned and it is thus concluded that using AI tools such as predictive analysis will be beneficial in identifying the re-order time and lead time for the equipment. For the healthcare equipment, cost is also mentioned as an

identified factor that will have a direct implication on patients and it is concluded that the use of AI can also help in reducing cost as procurements costs will be minimized as mentioned in the case studies.
An example of a pandemic is also mentioned in the research for analyzing the severity of managing the need for having equipment on a timely basis in the healthcare sector and thus it also concludes that if technological innovation in the form of AI will not be in place then it will not be possible to manage the healthcare quality standards.

Future recommendations

For future research, it is recommended that the qualitative aspect must also be included because it would help in analyzing the in-depth role of AI specifically for the procurement sector.
For future research, it is also recommended to include interviews with the managers working in procurement departments of healthcare institutions. Their responses will then be used as a cross-reference for data collected for primary research. The consistency among the responses of qualitative and quantitative data will help in increasing the validity and reliability of the research conclusion.

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